

BYU Grad Student Studying Bighorn Sheep

Tom Smith is investigating how good management can best help big horn sheep survive and continue to reproduce in northeastern Utah.

By Sue Bergin, Staff Writer

The mountainside is treacherous, but five Rocky Mountain bighorn sheep negotiate rocks and crevices with a surefooted confidence that would turn any mountain climber green with envy.

The small herd stops to eat choke cherries while one of its members bounds to a rock and turns to stare at onlookers, his huge curling horns

framing a face that seems at once kindly and fearless. The presence of human visitors a few hundred yards away seems not to bother him at all.

The sheep, now a rare species, are among about 70 that make their home on a mesa along the Green River corridor in northeastern Utah. BYU doctoral candidate Tom Smith is studying these animals. Smith and his wife,

Cynthia, and their year-old son, Michael, live in nearby Dutch John during the coldest winter months and spend the rest of the year living in a tent on the mesa.

The Smiths arrived at the site last May, fresh from two years in Alaska, where Tom studied reindeer for his master's thesis. They plan to remain in northeastern Utah at least through the summer of 1987.

Rocky Mountain bighorn sheep were plentiful in the prime habitat of the Green River corridor for centuries, as evidenced by Indian rock drawings that depict the exquisite animals. But the population virtually disappeared because of many factors, including hunting by early settlers and diseases introduced by domestic sheep.

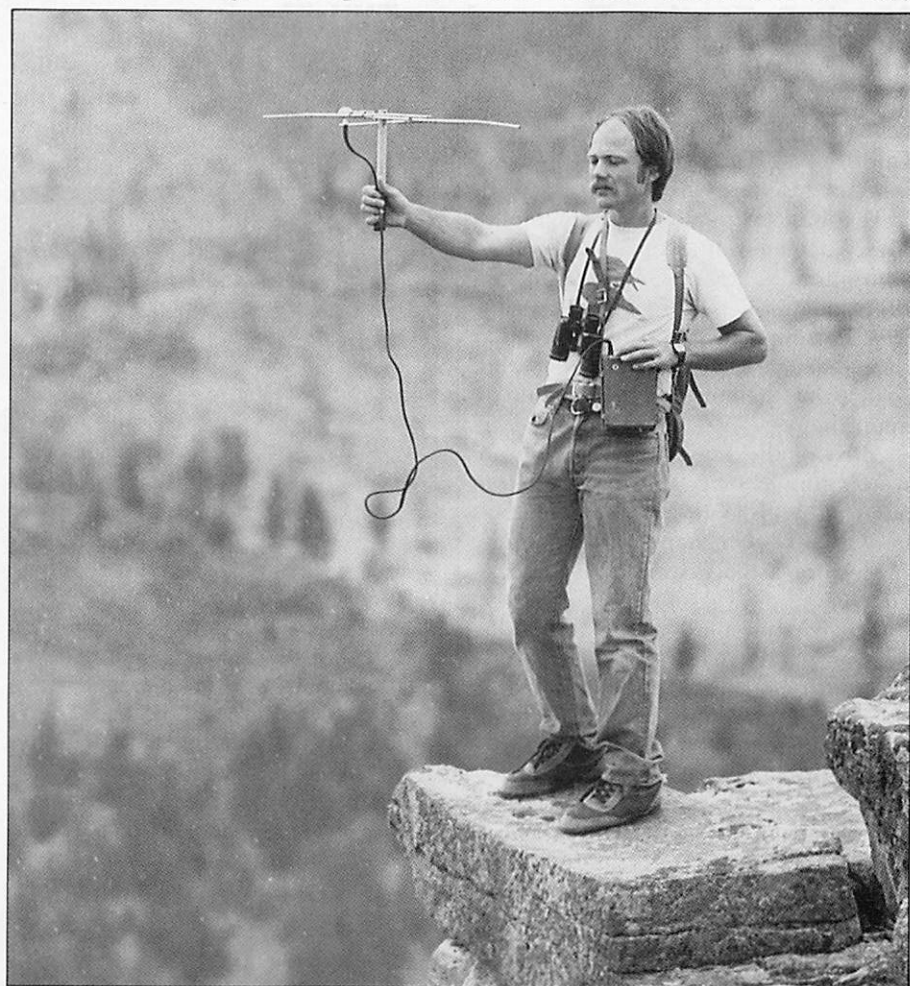
Both hunters and wildlife enthusiasts appreciate the rarity and beauty of bighorn sheep, in particular the dramatic horns that on adult males can complete a full curl and weigh up to 40 pounds.

In 1983, the Utah Division of Wildlife Resources and the U.S. Forest Service decided the time was right to try re-introducing the species into the Green River area. Domestic sheep herding in the area had decreased, and a substantial amount of Forest Service land was available for the experiment. That year, and again in 1984, they transplanted groups of bighorn sheep from Wyoming, totaling 36 animals. To protect the sheep, roads to the area were sealed off and hunting was prohibited.

So far the project has been successful beyond expectations. The herd has more than doubled in two years and signs of maladjustment or illness are low.

Dr. Jerran T. Flinders, professor of botany and range science at BYU, helped design a program to monitor population and determine habitat improvements that would benefit the wild sheep. Smith's job is to carry out the program by observing the sheep and by adding to knowledge about how good management can best help the animals survive and continue to reproduce.

Eight of the animals have been fitted with radio collars so far, enabling Smith to locate them almost daily.



Tom Smith checks for signals to locate radio-collared bighorn sheep.

very important construction material," says Budge. "It is very durable. Everything in this park will last a long, long time. Another advantage is that you can construct concrete structures in any shape for which you can build a form."

Indeed, when the park opens this spring, concrete canoes built by BYU's civil engineering students will be attached to the new boat dock. The canoes have already been proven to stay afloat.

Larry Vance, who recently graduated with a master's degree in civil engineering from BYU, came up with the structural design for the hyperbolic paraboloid roof. His design was not only selected because of its concrete form, says Budge, but because it represented an "engineering challenge."

How this 24,000-pound structure was ever lifted is an engineering feat in itself. At first glance, the only possible explanation appears to be that the paraboloid was dropped in place by a helicopter. Budge says that would have been the easy way out.

In actuality, the students jacked the paraboloid to the top of the single column by using four cable strands that were attached to a shear head, a steel pipe embedded in the concrete. A 55-ton capacity hydraulic jack was positioned between two steel plates at the top of the column. Then the roof structure was lifted up about five inches at a time.

Once lifted, a pin was placed through the metal column and the shear head of the concrete paraboloid. The shear head was then welded to the column.

Richard Jensen, a senior in civil engineering and student supervisor over the construction of the pavilion, says he never knew what it really took to make a design come together until he directed this project.

"I learned about managing time, scheduling construction materials and making sure you have enough people on hand," says Jensen. "I also learned that everything doesn't always turn out the way you want it to, and you may have to improvise by using good engineering judgment. It's the best experience I've had in my college years."



This copper mask might have been used in folk dances that poked fun at old age.

Mask Collection Donated to BYU Museum

A collection of 70 striking and dramatic masks from Mexico was recently donated to the Museum of Peoples and Cultures at BYU, museum associate director Michael Cox has announced.

The masks were donated by Dr. and Mrs. Michael Braunstein of Las Vegas, who intended for the museum to sell them and apply the proceeds toward a new museum facility. But, Cox said, the masks are of such high quality and so rare that the museum has decided to keep them.

Most of the masks are made from wood, copper or papier mache, often accented with leather and animal hair or whiskers. On many of the masks, prehistoric artifacts were added as earrings.

The copper masks come from Alta Mirano, a town in the state of Guerrero in south-central Mexico, and the others come from all over southern Mexico. They date from the late 19th century to about 1945.

"The masks were worn in a variety of folk dances and religious dances, many of them associated with saints' days," said Cox, who directs education and development activities for the museum. "A copper mask in the collection that depicts an old man with a long, flowing beard, for example,

might have been worn for a dance that pokes fun at old age or portrays the pains and problems of old age and how you deal with them."

Rex A. Wadham Dies



Dr. Rex A. Wadham, a BYU associate professor of elementary education, died Nov. 1 at his home in Provo of respiratory failure. He was 55.

Wadham had taught at BYU for 23 years. He was widely known for his research in learning theory and was an educational consultant throughout the United States and Canada.

In addition, he served as a member of the general board of the LDS Sunday School organization and the General Church Correlation Committee.

He is survived by his wife, Sherry Lynn Hiatt, and his three daughters and one son.

(Periodically he flies over the area to get a full picture of where the sheep are.) He notes what the sheep eat, what their movements are and how healthy they appear.

One of Smith's most time-consuming tasks is to study areas where the sheep have fed. After they leave the feeding site, he tries to determine what they have eaten and how much. Plants that have been nipped take on a different color or show obvious signs of grazing.

"I've spent up to three hours on hands and knees, looking at every blade of grass and trying to figure out which plants have been foraged," he says.

Smith has come across a few surprises. It turns out that one species of grass that animal scientists have thought bighorn sheep love—*agropyronspicatum* or bluebunch wheatgrass—they hardly touch, at least in the summer. And they eat choke cherries, which are thought to be a meal they would avoid.

Smith is also filling the role of botanist by making a collection of all plant species found on the study site. With a plant press back at camp, he dries his

specimens, then files them for later consultation with an expert. He believes he has already accounted for about 99 percent of the "biomass"—all living greenery. The information is important in analyzing and evaluating the sheep's habitat.

In the spring, Smith and his family will return to the two-tent complex they have set up under several tall pine trees. One tent serves as the camp kitchen and the other as the family bedroom. The kitchen has a wooden floor, and food-laden shelves line the tarp walls.

The latrine is about two tree clumps away, and the shower is a quarter-mile walk to a large water source set up by the U.S. Forest Service for animals.

The Smiths thrive on roughing it, and they consider the opportunity to live in the wilds a luxury. And though they're people-loving folks themselves, they can't help but relish a short stint away from urban life.

"You can be around thousands of people any time," says Tom. "To live like this—right out with the wildlife and away from any other humans—is a chance we'll probably never have again."

BYU Plans 1987 Women's Conference

Centered on the theme "Women of Faith—Diversity in Works, Unity in Faith," the 1987 BYU Women's Conference will recognize the diversity in the lives of LDS women, who are of all different races, backgrounds and political persuasions yet are bound together by common religious commitments and ties.

The conference will be held on campus March 12 and 13.

Patricia Terry Holland will give the keynote address on March 12 in the Marriott Center at 8:30 a.m.

"The conference organizers hope that the conference will offer support and new perspectives to both women and men," says Dr. Mary E. Stovall, director of the Women's Research Institute, "as we struggle to receive inspiration and make hard choices about our personal courses in life."

The conference will include 33 presentations, panels and discussions on

such topics as "The Spiritual Basis of Self-Esteem," "New Realities, New Roles: Single and Blended Parenting" and "Encouraging Faith Development in Children."

In addition, there will be a Thursday evening fireside with Dr. Carlfred Broderick of the University of Southern California. Dr. Broderick will discuss "The Uses of Adversity."

This year the Women's Conference is cosponsoring several sessions of the BYU Family and Demographic Research Institute's and the BYU Gerontology Resource Center's conference on "Aging and the Family" also running March 12 to 13. Registrants for the Women's Conference may attend any of these sessions as well.

For program and registration information, contact Conferences and Workshops, 136 Harman Building, BYU, Provo, UT 84602; or call (801) 378-4853.

Smith Institute Readying Joseph Smith Diaries, Autobiographies for Publication

The Joseph Fielding Smith Institute for Church History at BYU is doing research for a major publication on the diaries and autobiographies of Joseph Smith, the first president and prophet of the LDS Church.

Ronald K. Esplin, director of the Institute, said historian Dean C. Jessee is preparing manuscripts along with extensive annotated footnotes and scholarly commentaries for inclusion in the publication, which has been given the working title, *Joseph Smith Diaries and Autobiographical Writings*.

It is due to be published later this year by Deseret Book.

Jessee is widely recognized as the foremost authority on historical documents relating to the life of Joseph Smith, according to Esplin.

"This will be the second publication in a long-term Institute project to make the papers of the Prophet Joseph Smith available in print," Esplin said.

The first was *The Personal Writings of Joseph Smith*, edited by Jessee and published in 1984 by Deseret Book. *Personal Writings* is an important volume that provided for the first time the complete text of materials written by the Prophet's own hand, the director said.

"The upcoming work will include Joseph Smith's diaries and journals—those kept by secretaries and clerks as well as those in his own hand," Esplin said.

It will present the exact text of each manuscript along with appropriate introduction, explanation and annotation. The work will be edited in accordance with professional guidelines developed by the National Historical Publications Commission and the Center for Editions of American Authors.

"This will be an invaluable reference for all who are interested in the life and teachings of Joseph Smith," Esplin said.

Faculty Promotions Announced

Provost and Academic Vice President Jae R. Ballif recently announced the advancement of 21 faculty members to the rank of full professor and the promotion of 34 additional members of the faculty.

BIOLOGY AND AGRICULTURE: Professor—Richard E. Terry, Agronomy and Horticulture; William W. Winder, Zoology; Associate Professor—Shauna C. Anderson, Microbiology; Paul A. Cox, Botany; C.

Arden Pope, Agricultural Economics; Jack W. Sites, Zoology.

EDUCATION: Professor—A. Garr Cranney, Secondary Education; Associate Professor—Richard W. Harris and Gary L. Kramer, Educational Psychology.

ENGINEERING AND TECHNOLOGY: Professor—Douglas M. Chabries and Richard Christiansen, Electrical Engineering; Paul O. Hedman, Chemical Engineering; Associate Pro-

fessor—Jay S. Newitt, Industrial Education.

FAMILY, HOME AND SOCIAL SCIENCES: Professor—Earl H. Fry and W. Ladd Hollist, Political Science; Associate Professor—Donna Lee Bowen, political science; Donald W. Forsyth, Anthropology.

FINE ARTS AND COMMUNICATIONS: Professor—Michael Day, Art.

HUMANITIES: Professor—Royal J. Skousen, English; Associate Professor—Te-Lee (Richard) Chi and Dilworth B. Parkinson, Asian and Near Eastern Languages; Gloria L. Cronin, English; Associate Research Fellow—Melvin R. Smith, Humanities Research Center; Lecturer—Cinzia D. Noble, French and Italian.

PHYSICAL AND MATHEMATICAL SCIENCES: Professor—David W. Embley, Computer Science; Jack W. Lamoreaux, Mathematics; H. Dennis Tolley, Statistics; Associate Professor—Dan R. Olsen and Scott N. Woodfield, Computer Science.

PHYSICAL EDUCATION: Professor—Howard R. Gray, Recreation Management; Associate Professor—Leslie Ditson, Physical Education—Dance; Assistant Athletic Professional—Thomas J. Ramage, Physical Education—Sports.

RELIGIOUS INSTRUCTION: Professor—James R. Christianson and Keith W. Perkins, Church History; Associate Professor—Susan Easton-Black, Church History; Assistant Professor—Paul Y. Hoskisson, Ancient Scripture.

SCHOOL OF MANAGEMENT: Professor—Gary F. McKinnon and Scott M. Smith, Business Management; Paul R. Timm, Information Management; Warner P. Woodworth, Organizational Behavior; Associate Professor—Heikki J. Rinne, Business Management.

SCHOOL OF LAW: Professor—Constance K. Lundberg.

LEE LIBRARY: Associate Librarian—Scott H. Duvall, Afton McGrath Miner; Assistant Librarian—K. Haybron Adams, Linda W. Brown, Julio Caycedo, David A. Day, James V. D'Arc, Janet O. Francis, Harvard S. Heath, Richard O. Jensen, Melva H. Richey, Dale S. Swensen, Grant W. Turnblom.

BYU Opens 462-acre Lytle Ranch

In a quiet ceremony for about 100 scientists and nature enthusiasts, President Jeffrey R. Holland recently opened the 462-acre BYU Lytle Ranch Preserve 35 miles west of St. George as an outdoor classroom and sanctuary.

With \$240,000 from an anonymous donor, BYU bought the ranch in August from the Nature Conservancy, which had earlier bought it from Talma Lytle. An organization of 250,000 members that sponsors 3,000 projects across the country, the Nature Conservancy specializes in acquiring land to protect rare plants and animals.

Located in the Beaver Dam Wash, the Lytle Ranch is home to a unique blend of flora and fauna, brought together in a transitional zone between the Mojave Desert and the Great

Basin. More than 20 bird species are found there and nowhere else in the state. Other animals include sidewinders, gila monsters, desert tortoises and insects.

Bruce Smith, dean of the College of Biology and Agriculture, said the ranch is a place to come and learn. "We want to have our friends and neighbors come, as well as scientists from BYU and other universities," he said.

While it's not a recreation area, the ranch will be open to the public during the daytime for such activities as hiking, bird watching and plant and animal study. Large groups are encouraged to make advance reservations by writing to the preserve manager, Gary Baird, Lytle Ranch Preserve, P.O. Box 398, Santa Clara, Utah 84765.



President Jeffrey R. Holland, along with Dave Livermore of the Nature Conservancy, unveils a sign at the entrance of the Lytle Ranch.